

INDEXING SYSTEM AND METHOD FOR NEAREST NEIGHBOR SEARCHES IN HIGH DIMENSIONAL DATA SPACES

ABSTRACT

5 Vectors representing objects in n-dimensional space are approximated by local polar coordinates on partitioned cells of the data space in response to a query, e.g., a query data vector entered with a request to find "k" nearest neighbors to the query vector. A set of candidate near neighbors is generated using the approximations, with the local polar coordinates being independent of the dimensionality of the data space. Then, an answer set of near neighbors is returned in response to the query. Thus, the present invention acts as a filter to reduce the number of actual data vectors in the data set that must be considered in responding to the query.